



The cascading use of biomass – (how) does RED III ensure the efficient use of wood?

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ABSTRACT

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Decarbonising heating in buildings is a key requirement for achieving the European Union's climate targets and the objectives of the Paris Agreement. Biomass currently represents the largest renewable energy source for heating in the EU. The growing energetic use of especially woody biomass raises significant sustainability concerns. Large-scale bioenergy deployment may intensify land-use conflicts, affect biodiversity and reduce forest carbon sink capacities, thereby potentially undermining climate mitigation objectives.

To address these challenges, the revised Renewable Energy Directive (RED III) introduces new rules governing the use of biomass. Central among them is the principle of cascading use of biomass, which prioritises the material use especially of wood in durable products before reuse, recycling and, ultimately, energy generation. But the directive raises several questions regarding the interpretation and implementation of this principle, particularly concerning the meaning of 'highest economic and environmental added value', the scope of permissible derogations, and the role of 'national specificities', that are yet to be answered.

This paper argues that RED III contains an obligation for the Member States to ensure the cascading use of biomass both in law and in practice. It outlines the directive's legal framework for the principle of the cascading use of biomass and offers interpretations for the meaning of important terminology. It concludes that RED III requires full implementation of the cascading use of biomass in the Member States and options for derogation from it are strictly limited.

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Decarbonising building heating is a central challenge for achieving the European Union's climate targets and the objectives of the Paris Agreement. The transition towards a zero-emission building stock requires a rapid phase-out of fossil-based heating systems and a large-scale deployment of renewable alternatives. Within this transition, biomass—which classifies as renewable source (Art. 2(1) Renewable Energy Directive (EU) 2023/2413 (RED III)—currently plays a prominent role: in 2023, primary solid biofuels accounted for approximately 17.0% of final energy demand for households in the EU ([Eurostat, 2026a](#)). Accounting for over 60% (or 26.2 million tonnes of CO₂ equivalent), the majority of the total net greenhouse gas emissions avoided in 2021 in the heating sector was attributable to the use of solid biomass ([Lauf et al., 2022](#)). However, the combustion of biomass—just like the combustion of fossil fuels—is a very inefficient form of energy generation, compared to heat generation using heat pumps for example. In order to ensure the swiftest possible transition to renewable energy sources for heat generation and to maximise energy efficiency, the focus should clearly be on more efficient heating systems, and the share of biomass in heat generation should be kept as low as possible.

Also, the increasing reliance on biomass—particularly woody biomass—raises significant sustainability concerns. While RED III promotes the expansion of renewable energy, including bioenergy, the increased harvesting and combustion of biomass may undermine the EU's climate objectives in other areas. In particular, intensified forest use can reduce carbon sink capacities in the land use, land-use change and forestry (LULUCF) sector, which plays a crucial role in achieving climate neutrality and for which the LULUCF-Regulation (EU) 2018/841 amended by Regulation (EU) 2023/839 sets a net carbon removal target of -310 MtCO₂e for the entire EU. This creates a structural tension: the same biomass that contributes to renewable energy targets may simultaneously weaken the EU's ability to meet its climate targets by diminishing natural carbon sinks.

This tension is exacerbated by the fact that RED III does not set a quantitative limit on the contribution of woody biomass to renewable energy targets, which is open to criticism on energy efficiency grounds. Energy from woody biomass counts fully towards the renewable energy share, without a specific cap or differentiation based on resource constraints or efficiency features. As a result, there is a regulatory risk that increasing demand for renewable energy may incentivise the expanded energetic use of woody biomass, even where this is not optimal from a broader climate or resource/energy-efficiency perspective. RED III seeks to address this risk through the introduction of the principle of the cascading use of biomass as a key regulatory mechanism. This principle prioritises the material use of wood before reuse, recycling and, ultimately, energy recovery. The cascade is intended to ensure that biomass and especially wood (see Art. 3(3) subpara. 2 RED III) are used as efficiently and sustainably as possible. Thus, it aims to function as a qualitative constraint on the use of woody biomass within the renewable energy framework. But civil society organisations and policy analyses have criticised RED III for insufficiently addressing the trade-offs between bioenergy use, biodiversity protection and carbon sink preservation ([WWF, 2023](#); [FERN, 2023](#)).

However, the legal meaning and practical implications of the cascade principle remain contested. In particular, three aspects of Article 3(3) RED III give rise to significant interpretative uncertainty: the requirement that wood be used according to its 'highest economic and environmental added value', the obligation to ensure cascading use 'with due regard to national specificities', and the scope of derogations permitted under Article 3(3a) RED III. These ambiguities have already triggered policy debates about the extent to which Member States may adapt or limit the cascade principle in their national implementation. For example, a study by the Energy Institute at Johannes Kepler University Linz suggests a comparatively flexible interpretation of these provisions, potentially allowing for a broader consideration of national circumstances and economic factors in applying the cascade.

This paper addresses the following research question: To what extent does RED III establish a binding obligation to ensure the cascading use of biomass, and how far does it limit Member States' discretion to deviate from or modify this principle in national law? It argues that RED III imposes a legally binding requirement to ensure the cascading use of biomass that significantly constrains national flexibility. In particular, the paper shows that neither the reference to the

highest economic and environmental added value nor the consideration of national specificities allows for a general weakening of the cascade principle. Instead, derogations are exhaustively defined and narrowly circumscribed under Article 3(3a) RED III. In light of the absence of a quantitative limit on biomass use within RED III, a strict and effective implementation of the cascade is essential to prevent unintended adverse effects on climate mitigation, biodiversity and resource efficiency.

METHODOLOGY AND STRUCTURE

To substantiate this claim, the paper analyses the legal framework of RED III using established methods of legal interpretation: wording, systematics, history and telos, while also taking into account relevant case law of the European Court of Justice (ECJ). This paper is based on desk research.

First the authors outline the regulatory framework of the EU for the role of renewable heat energy and climate protection targets. Secondly, the importance of woody biomass for energy generation and the effects of its use will be illustrated.

In the third section, the authors describe the RED III biomass cascade and the requirements for its implementation at the national level. In the fourth section, it will be shown what RED III means by the term ‘support schemes’. Subsequently, the significance of the highest economic and ecological added value with regard to the use of wood and the consideration of national specificities in the design of support schemes are examined in detail.

The fifth section analyses in depth the possibilities for derogating from the cascade when transposing it into national law. The last section discusses general issues relating to the implementation of EU directives into national law.

RESULTS

REGULATORY FRAMEWORK

The European Union has significantly strengthened its climate and energy policy framework in recent years as part of the European Green Deal. A central objective of this framework is climate neutrality by 2050, as laid down in Art. 2(1) of the EU Climate Law (Regulation (EU) 2021/1119). As an intermediate target, Art. 4(1) of the same regulation requires a reduction of net greenhouse gas emissions by at least 55% by 2030 compared with 1990 levels. Within this framework, RED III aims to accelerate the deployment of renewable energy sources. Art. 3(1) RED III requires Member States to ensure that the share of energy from renewable sources in the Union’s gross final energy consumption reaches at least 42.5% by 2030. The EU reached a 25.2% share of its gross final energy consumption from renewable sources in 2024 ([Eurostat 2025](#)). For the building sector, Art. 15a(1) RED III further specifies this objective by requiring that at least 49% of energy consumption be covered by renewable sources by 2030. In 2024, renewable energy accounted for 26.7% of total energy use for heating and cooling in the EU ([Eurostat 2025](#)).

Regulation (EU) 2018/842 (Effort Sharing Regulation)—amended by Regulation (EU) 2023/857—sets binding emission reduction obligations for Member States which also include the building sector. For each Member State, Art. 4(1), in conjunction with Annex I requires a certain reduction in emissions by 2030 compared to 2005 levels. Member States must also comply with annual emission allocations (Art. 4(3)). In addition, the Energy Performance of Buildings Directive 2010/31/EU (EPBD) requires new buildings to be zero emission buildings (ZEB) from 2028/2030 (Art. 7 and 11) and obliges Member States to establish a national roadmap for transforming the entire national building stock into a zero-emission building stock by 2050, including interim targets for 2030 and 2040 (Art. 9(2)). From 2028 on, the building sector will also be subject to the EU emission trading system for buildings and road transport (ETS II).

In addition, there are product-specific standards, which are set out in particular by Implementing Regulations within the ecodesign-framework of Regulation (EU) 2024/1781 (Ecodesign for Sustainable Products Regulation—ESPR) or the former Directive 2009/125/EC. These Commission Regulations contain EU-wide binding requirements on specific products. However, neither the current provisions of Regulation (EU) 2015/1189 for solid fuel boilers nor

Regulation (EU) 2015/1185 for solid fuel local space heaters or similar Regulations like (EU) Regulations (EU) No 813/2013 for space heaters and combination heaters or Regulation (EU) No 814/2013 for water heaters and hot water storage tanks contain specifications on the fuels that can be used in such systems. The regulation of any fuels (for example biomass, wood or fossil fuels) is addressed through other instruments (see [Braungardt et al 2021](#) and [Keimeyer et al 2021](#)). The same applies to the Regulation (EU) 2017/1369 for energy labelling (amended by Regulation (EU) 2020/740).

THE ROLE OF WOODY BIOMASS FOR HEATING ENERGY

The necessary decarbonisation of the building sector requires a rapid phase-out of fossil heating technologies. This objective is reflected not only in EU legislation but also in ongoing national policy debates. As stated in Recital (17) RED III, ‘buildings have a large untapped potential to contribute effectively to the reduction in greenhouse gas emissions in the Union. The decarbonisation of heating and cooling in buildings through an increased share in production and use of renewable energy will be needed to meet the ambition provided for in Regulation (EU) 2021/1119 to achieve the Union objective of climate neutrality’. Renewable heating technologies such as heat pumps are expected to play a central role in this transition and while biomass can also be used for electricity generation it is more importantly considered to be a complementary option for direct building heating particularly in rural areas or to substitute for fossil fuels in existing heating systems such as district heating.

Energy from biomass makes up 59% of the renewable energy in the EU (see [Camia et al., 2021, p. 40](#); [European Commission, 2023, p. 1](#)). Biomass also contributes significantly to energy system flexibility due to its storability and dispatchability. Unlike weather-dependent renewable sources such as wind and solar energy, biomass can be stored and used on demand, which makes it particularly relevant for heat supply and for balancing the electricity system and therefore helps to maintain energy security. In 2023, primary solid biofuels accounted for approximately 17.0% of final energy demand for households in the EU, with a slight increase (mean from 2013–2017: 16.8%; mean for 2020–2024: 17.1%; [Eurostat 2026a](#)), and the use of solid biofuels for heating and cooling rose by 4% in the EU during this period ([Eurostat 2026b](#)). This trend is expected to continue. An evaluation of the Member States’ National Energy and Climate Plans (NECPs) from 2021 show an increase in use of biomass for heating over the period 2020–2030 throughout the EU ([Smith et al., 2021](#), Table 3–2). There is a substantial variation between the Member States with shares of more than 39% in countries such as Romania, Slovenia, Estonia and Croatia ([Eurostat 2026a](#)).

At the same time, biomass resources are limited and subject to competing uses, particularly between material uses (such as timber products, construction materials or paper production) and energy generation. In Europe, large shares of biomass are already used energetically. In 2021, 70% of EU domestic biomass supplied for energy purposes was solid biomass (95% wood-based, [European Commission, 2023, p. 3](#)). Recent Eurostat data show that the share of fuelwood in total roundwood production in the EU increased between 2000 and 2022 in almost all Member States and throughout the EU in total ([Eurostat 2023](#), Figure 3). In the same period of time, roundwood production in the whole of EU increased by 25% with the volume of firewood increasing by 50%—a sharper rise than that of industrial wood, which increased by 22% ([FAOSTAT, 2026](#)). In addition, Eurostat data show that, although the gap was narrowing, the EU imported more firewood from non-EU states in 2015–2022 than it exported outside the EU ([Eurostat 2023](#), Figure 7). These statistics, however, only cover direct energetic use of roundwood. In Germany in 2020, 53% of woody biomass was used for material products and 47% for energy purposes when including cascading use of residues and wastes ([Hennenberg et al. 2024](#)). Throughout the EU, direct and indirect/cascading energy uses accounted for almost 60% of the total roundwood production in 2017, 44% of which was primary wood directly used for combustion ([Kowalczyńska et al., 2023, p. 44](#)).

The use of woody biomass for energy production also raises important questions regarding resource efficiency, land use and climate impacts. In RED III (Annex VI, Part B, para. 13) the direct CO₂ combustion emissions from biomass are set to zero by definition (the effects of this definition are shown by [Bei der Wieden et al., 2025](#)). This was a political decision to promote the use of biomass for energy production ([Rüter, 2023, p. 11](#)). This does not change the fact that combustion of biomass emits CO₂. Increased demand for bioenergy can intensify

competition for forest resources and may influence land-use patterns, forest management and global biomass trade, and contribute to local air pollution, particularly through particulate matter emissions, to land-use change and to loss of biodiversity and ecosystem services (such as carbon storage and sequestration; see [Bei der Wieden et al., 2025](#), [Kowalczywska et al., 2023](#)). E.g., burning 128 Mm³ of fuel wood in the EU Member States in 2024 ([FAOSTAT, 2026](#)) causes about 117 Mt CO₂ direct emissions (assuming 0.25 t C/m³). If parts of the fuel wood are not harvested or are used as materials like wood panels, carbon pools that account under LULUCF could increase respectively (see [Bozzolan et al. 2023](#)). Consequently, the sustainability of bioenergy cannot be assessed solely on the basis of greenhouse gas emissions along the life cycle and its substitution effect for fossil fuels but must also consider impacts on carbon sinks. Wood fuel extraction is also likely to reduce biodiversity in Europe, mainly via deadwood loss and intensified harvesting ([Bouget et al. 2012](#), [Ranius et al. 2018](#)). However, impacts strongly depend on site conditions, the applied forest management and the type of the extracted wood (e.g. residues, stems of young/old trees and tree species). Though it is difficult to generalise and quantify the impact on biodiversity (compare [Camia et al. 2021](#)) impacts from fuel wood use on biodiversity and ecosystem integrity should enter e.g. into operational guidelines ([Bouget et al. 2012](#)).

CASCADING USE OF BIOMASS IN RED III

Against this background, RED III introduces provisions aimed at ensuring that biomass is used efficiently and sustainably. A central element is the principle of cascading use of biomass that must be ensured in the design of support schemes for energy from biofuels, bioliquids and biomass, see Art. 3(3) to (3d). The directive specifically outlines this principle with regards to wood. All biomass—but especially wood—should first be used for material purposes—such as construction materials or wood products—and only subsequently for energy generation once higher-value uses as declared by the directive have been exhausted. In policy terms, the cascade aims to ensure that the increasing demand for renewable energy and the promotion of their use through policy measures does not lead to unsustainable forest exploitation or undermine climate mitigation efforts through the premature combustion of valuable biomass resources.

Art. 3(3) RED III reads as follows:

Member States shall take measures to ensure that energy from biomass is produced in a way that minimises undue distortive effects on the biomass raw material market and an adverse impact on biodiversity, the environment and the climate. To that end, they shall take into account the waste hierarchy set out in Art. 4 of Directive 2008/98/EC and shall ensure the application of the principle of the cascading use of biomass, with a focus on support schemes and with due regard to national specificities.

Member States shall design support schemes for energy from biofuels, bioliquids and biomass fuels in such a way as to avoid incentivising unsustainable pathways and distorting competition with the material sectors, with a view to ensuring that woody biomass is used according to its highest economic and environmental added value in the following order of priorities:

- (a) wood-based products;
- (b) extending the service life of wood-based products;
- (c) re-use;
- (d) recycling;
- (e) bioenergy; and
- (f) disposal.

In the following, the authors will examine some terms in more detail. This is essential to fully understand the relationship of the cascade with regards to other requirements of RED III and the extent and necessary implementation of the cascade into national law.

Member States must ensure the cascading use of biomass in the design of support schemes for energy from biomass. The definition of the term ‘support schemes’ is rather broad.

Support schemes are defined in Art. 2(5) RED III as:

[...] any instrument, scheme or mechanism [...], that promotes the use of energy from renewable sources by reducing the cost of that energy, increasing the price at which it can be sold, or increasing, by means of a renewable energy obligation or otherwise, the volume of such energy purchased, including but not restricted to, investment aid, tax exemptions or reductions, tax refunds, renewable energy obligation support schemes including those using green certificates, and direct price support schemes including feed-in tariffs and sliding or fixed premium payments [...]

Therefore, support measures include not only direct financial support, but also regulatory provisions that, for example, require the use of a certain proportion of renewable energies. Such mandatory minimum levels for the use of energy from renewable sources in new buildings and, in cases of major renovation or the replacement of heating systems, in existing buildings, are required by Art. 15a(3) subpara. 2 RED III.

The design of support measures as defined in Art. 2(5) is left to the Member States. But the principle of the cascading use of biomass must be ensured in all kinds of support schemes falling under this definition.

Significance of the highest economic and environmental added value

A potential relativisation of the cascade requirement for woody biomass arises from Art. 3(3) subpara. 2 RED III, which links the cascading use of wood to the ‘highest economic and environmental added value’. Two interpretations seem possible here.

Under a first interpretation, each decision on the use of woody biomass would have to be assessed case by case against a combined ‘economic and environmental added value’ benchmark. According to a study on the use of renewable energy from biomass based on RED III by Energieinstitut, this requirement is not meant to achieve material use at any price (pp. 27, 28). The study states that the reference to the highest economic and environmental added value aims at prioritising material use of wood exclusively in those cases where such economic and environmental added value can actually be achieved (pp. 27, 35). The ecological and economic benefits are seen as a prerequisite for the obligation of applying the stated order of priorities for the use of woody biomass. But it must be considered that support schemes themselves affect the economic attractiveness of energy use. A meaningful comparison would therefore have to leave out any subsidies and internalise relevant climate effects (e.g. emissions from combustion, continued carbon storage in harvested wood products as reflected in national inventories, and potentially biogenic CO₂ capture and storage), which is not stated clearly in the cited study. It can be assumed that the directive does not allow for an open-ended individual assessment without further premises.

A systematic and teleologic analysis should focus on the legislative purpose of Art. 3 RED III. Art. 3(3) RED III aims to limit state intervention in the use of biomass in such a way that the energy recovery of wood is not favoured over higher-value material uses through support measures. To this end, Art. 3(3c) contains specific binding prohibitions on direct financial support for certain types of wood for energy production; Art. 3(3d) supplements this with a ban on new or renewed support (financial and non-financial) for electricity generation from forestry biomass, subject to narrowly defined exceptions.

The criterion of the highest economic and environmental added value, as laid down in the cascade principle, logically presupposes that the various options for the use of wood are compared with one another under undistorted market conditions. As long as state support schemes favour energy use over material use and thereby distort market signals, this criterion cannot be meaningfully applied. It therefore only comes into effect once Member States’ support schemes have been brought into line with the requirements of Art. 3(3), (3c) and (3d) RED III—or if existing distortions through support schemes are disregarded in the normative analysis so as not to undermine the regulatory purpose of the cascade.

In this context, attention should be drawn to the prohibition on direct financial support for the use of certain types of wood for energy purposes, as set out in Article 3(3c) RED III. This raises questions of interpretation regarding the definition of ‘industrial grade roundwood’ in Article 2(1a) RED III. The definition reads:

‘industrial grade roundwood’ means saw logs, veneer logs, round or split pulpwood, as well as all other roundwood that is suitable for industrial purposes, **excluding** roundwood the characteristics of which, such as species, dimensions, rectitude and node density, make it unsuitable for industrial use as defined and duly justified by Member States according to the relevant forest and market conditions.

Article 3(3c) RED III prohibits direct financial support for:

the use of saw logs, veneer logs, industrial grade roundwood, stumps and roots to produce energy.

The question may arise as to whether the exception in Art. 2(1a) RED III (‘**excluding** roundwood [...]’) refers to all the aforementioned types of wood and could therefore also apply to all types of wood mentioned in Art. 3(3c) RED III. As a result, the energy recovery of saw logs or veneer logs, which Member States consider to fall under this exception, would then be eligible for direct financial support.

Grammatically, the German version of Article 2(1a) RED III could allow for such a broad interpretation of the exception. The English version—as well as the Spanish and French versions—on the other hand, separates the category ‘all other roundwood that is suitable for industrial purposes’ syntactically more clearly from the preceding list by means of the phrase ‘as well as’ preceded by a comma; the exception follows directly on from this catch-all provision and, according to the grammatical analysis of these versions, refers only to it.

According to the case-law of the Court of Justice of the European Union, the various language versions of EU law are equally binding; no single version may be applied in isolation ([ECJ, 1982, para. 18](#)). Where there are discrepancies between the language versions, the provision in question must therefore be interpreted in the light of its general scheme and purpose ([ECJ, 2020, para. 43](#)). Accordingly, the narrow interpretation is to be preferred. Two systematic and teleological arguments support this:

Firstly, according to the relevant Eurostat/FAO definition ([Eurostat, 2011](#)), sawlogs and veneer logs are timber specifically intended for industrial purposes and are therefore generally suitable for such use. Whilst the application of the exception to these categories is not conceptually excluded, it is systematically remote, as the exception would typically have no practical effect in this context.

Secondly—and more importantly—it does not appear convincing from a systematic or teleological perspective if Member States were able to determine and justify, by invoking ‘relevant market conditions’ within the meaning of Art. 2(1a) RED III, which sawlogs or veneer logs are not suitable for industrial use and thus do not fall under the prohibition on direct financial support in Art. 3(3c) RED III. For Art. 3(3c) RED III is specifically aimed at abolishing market-distorting state interventions in favour of the use of high-quality timber for energy purposes. A broad interpretation of the exception would enable Member States to undermine this objective through corresponding national provisions—and thus to use precisely the instrument of market influence that the standard is intended to prohibit.

Consequently, the exception in Art. 2(1a) RED III must be restricted to the category ‘all other roundwood that is suitable for industrial purposes’. Sawlogs and veneer logs fall under the subsidy ban in Art. 3(3c) RED III without exception. This conclusion is further supported by the fact that Art. 3(3c) RED III lists sawlogs and veneer logs separately and without further qualification alongside industrial grade roundwood.

Significance of national specificities

Art. 3(3) RED III requires Member States to ensure cascading use ‘with due regard to national specificities’. This clause is sometimes interpreted as allowing exceptions to or to deviate from the cascade, as can be deduced from the study of Energieinstitut (pp. 23–28, 35). The cited

study seems to support this view by referring to Recital (10) RED III, which seems to be blurring the line between taking national specificities into account when designing support schemes and derogating from the cascade principle. However, a systematic reading of Art. 3 RED III does not support this interpretation. Rather, this clause concerns the *design and calibration* of national support schemes and does not itself constitute an opening clause for deviations from the cascade principle. Also, recitals serve an interpretative function and cannot extend or modify the scope of the binding provisions. Possible derogations and the systematics of Art. 3(3)–(3b) RED III will be further analysed below.

This raises the question of the regulatory meaning of taking into account national specificities in Art. 3(3) RED III and whether it allows any weakening of the principle of the cascading use of biomass. The wording of Art. 3(3) subpara. 2 RED III suggests otherwise: Member States must ensure the application of the cascade principle. The term ‘ensure’ indicates a binding obligation. Recital (10) RED III uses similar language. On this reading, the reference to national specificities merely reflects the general fact that EU directives are implemented within national contexts (see also below). It does not permit any additional derogation from the cascade principle compared to Art. 3(3a) RED III or any other deviation or any weakening in the implementation of the cascade.

An alternative interpretation would treat national specificities as an opening clause allowing adjustments of—or even deviations from—the cascading use of biomass (e.g. [Energieinstitut, p. 23](#)). The cited study assumes that the requirement to ensure the application of the cascade principle is relativised by the reference to national specificities and by Art. 288(3) TFEU, which states that a directive is binding for the Member States as to the result to be achieved, but leaves the choice of form and methods for the implication, and therefore the wording of Art. 3(3) RED III would not require unconditional implementation of the cascade. It also assumes that, for example, aspects of energy supply security could be understood as national specificities and be incorporated into a modified version of the cascade. However, such an approach is difficult to reconcile with the structure of Art. 3(3)–(3b) RED III, which clearly distinguishes between ensuring the cascade within support-scheme design (Art. 3(3) RED III) and derogating from it under narrowly defined conditions (Art. 3(3a) and (3b) RED III).

The directive does not define national specificities, leaving Member States with a degree of interpretative flexibility. Potential examples sometimes cited include national temperature conditions, heating demand, the number of heating degree days, the availability of sustainable biomass, or broader aspects of energy supply security ([Energieinstitut, p. 26](#)). Nevertheless, these factors may only form the *design* of support schemes under Art. 3(3) RED III. They do not trigger the notification procedure under Art. 3(3b) RED III and cannot justify departures from cascading. The scope of implementation design therefore reaches its limit where a measure would effectively amount to a derogation from the cascade principle.

DEROGATIONS FROM THE PRINCIPLE OF THE CASCADING USE OF BIOMASS

Definition of derogation from the cascade pursuant to Art. 3(3a) RED III

Derogations are governed exclusively by Art. 3(3a) RED III, which permits departures from cascading only in the enumerated cases:

Member States may derogate from the principle of the cascading use of biomass [...] where needed to ensure security of energy supply. Member States may also derogate from that principle where the local industry is quantitatively or technically unable to use forest biomass for an economic and environmental added value that is higher than energy production, for feedstocks coming from:

- (a) necessary forest management activities, aiming to ensure pre-commercial thinning operations or carried out in accordance with national law on wildfire prevention in high-risk areas;
- (b) salvage logging following documented natural disturbances; or
- (c) the harvest of certain woods whose characteristics are not suitable for local processing facilities.

The structure of Art. 3 RED III distinguishes clearly between taking national specificities into account when designing support schemes to ensure cascading use (Art. 3(3) RED III) on the

one hand and narrowly defined derogations from the cascade principle (Art. 3(3a) RED III) on the other hand. When read systematically, derogations are permitted only under Art. 3(3a) RED III and only on the grounds exhaustively set out therein. Art. 3(3a) RED III also does not establish a general discretion to deviate from cascading whenever local processing capacity is insufficient. At the same time, Member States may further specify the undefined legal terms within these derogation criteria in national law to operationalise their application.

Where a Member State relies on a derogation, it must determine its applicability and notify the Commission pursuant to Art. 3(3b) RED III. The Commission may then issue an opinion on whether it considers the derogation justified.

Derogation needed to ensure security of energy supply

Art. 3(3a) RED III permits derogations from the cascading-use principle where necessary to ensure security of energy supply. RED III does not define ‘security of energy supply’. In general, it is understood to mean maintaining a reliable, continuous supply of energy in the present and over time. Arguments invoked under this heading include heating needs driven by climatic conditions, dependence on imported fossil fuels, reliance of district heating networks on woody biomass, widespread use of individual wood stoves, and the system value of bioenergy as a storable and dispatchable source for renewable energy ([Energieinstitut, pp. 28–31](#)).

However, invoking the *structural* importance of woody biomass in a Member State’s energy mix as a basis for derogation is problematic: the cascading requirement is intended precisely to curb dependence on woody biomass for energy generation and to enhance sustainable use and resource efficiency of biomass, see Recital (10) RED III. An exception should therefore not be applied in a way that leads to an expansion, rather than a reduction of such dependencies. Whether a particular constellation of factors is sufficient to justify a derogation ultimately depends on the legal and factual assessment in the specific case and would, if contested, fall to be reviewed by the ECJ (e.g. in infringement proceedings).

Recital (10) RED III provides interpretative guidance by citing ‘particularly severe cold conditions’ as an example for the need to secure energy supply. This suggests a high threshold: not merely comparatively colder-than-average conditions, but exceptional situations significantly exceeding typical EU conditions, whether measured via average temperatures or indicators such as heating degree days. It should be noted that the study of Energieinstitut (p. 26) also uses these arguments to justify the existence of national specificities. It has already been analysed here that ‘national specificities’ in the design of the implementation of the cascade should be strictly separated from derogations.

At the same time, implementing Art. 3(3) RED III through the redesign of support schemes may increase costs for biomass plants and biomass fuels (e.g. if preferential tax treatment for wood energy were reduced). Such reforms could also lower supply and raise prices. This distributional dimension may matter: low-income households relying on wood-based heating could face affordability-driven risks to their ‘secure’ energy supply, especially where switching to alternative heating systems is financially out of reach. This might allow for limited derogations from the cascading use of biomass.

IMPLEMENTATION OF THE CASCADING USE OF BIOMASS INTO NATIONAL LAW

The following section examines the need and extent of implementing the cascade into national law. In particular, it addresses whether implementation through non-binding administrative instruments (e.g. financial support programmes) or through mere practical compliance is sufficient.

ECJ requirements for the implementation of EU directives

Under EU law, directives are binding as to the result to be achieved but leave it to Member States to choose form and methods ([Article 288\(3\) TFEU](#)). At the same time, the principle of sincere cooperation ([Article 4\(3\) TEU](#)) requires Member States to take all appropriate measures to ensure the effective fulfilment of their obligations ([ECJ 2022, para. 26](#); [ECJ 1984, para. 26](#); [ECJ 1976, para. 69, 73](#)). According to the case law of the ECJ, this obligation extends to all public authorities and requires measures that ensure the full and effective application of a

directive through specific legislation or general principles of constitutional or administrative law (ECJ 1985, para. 23).

The ECJ has consistently held that the mere practical achievement of a directive's objectives is insufficient (ECJ 1991a, para. 8; ECJ 1991b, para. 24). Instead, implementation must be ensured through a clear and reliable legal framework (ECJ 1991a, para. 13; ECJ 1991b, para. 28; ECJ 1990, para. 25) but also be enacted in practice (ECJ 2022, para. 27). While directives do not necessarily require word-for-word transposition into national law, the applicable rules must guarantee transparency, clarity and legal certainty (ECJ 1985, para. 21, 23, 28; ECJ 1997a, para. 15; ECJ 1997b, para. 35; ECJ 1991b, para. 18 et seq., 28). In particular, purely administrative practices or non-binding instruments are generally not considered sufficient, as they lack the necessary stability, legal force and publishing (ECJ 1997a, para. 14, 15; ECJ 1991a, para. 61/72; ECJ 1991b, para. 20; Ruffert, para. 33, 38).

In summary:

- EU directives must be implemented legally and in practice.
- Member States must establish a binding legal framework for the implementation of EU directives; administrative practice or fulfilment through simple conditions alone are insufficient.
- Implementation measures must meet high standards of clarity, specificity and legal certainty, especially if the EU directive intends to grant subjective rights or impose individual obligations.

Implementation of the cascading use of biomass by means of financial support

The question might arise whether it could be sufficient to set up financial support measures based on internal non-binding administrative support guidelines to steer the use of biomass within support schemes according to the cascade, or whether it might be sufficient for the cascade to be fulfilled in practice only. The criteria set out by the ECJ regarding the binding nature of measures to implement an EU directive must be taken into account on the one hand. On the other hand, it must be noted that RED III does not seek to grant subjective rights on individuals. Rather, it aims to create an overarching policy objective and addresses the achievement of this objective within the design of support schemes in Art. 3(3) RED III itself.

As far as can be seen, no ECJ case law has been issued specifically on such a constellation. However, it is clear from the case law that the ECJ tends to require a binding legal framework for the implementation of directives into national law in all cases. Internal administrative regulations such as funding guidelines may supplement such binding legal implementation.

Further specifications for the implementation can be found in the wording of RED III: Art. 3(3) subpara. 1 and 2 RED III states (highlighted by the authors of this paper):

Member States shall **take measures to ensure** that energy from biomass is produced in a way that minimises undue distortive effects on the biomass raw material market and an adverse impact on biodiversity, the environment and the climate. **To that end, they** shall take into account the waste hierarchy set out in Art. 4 of Directive 2008/98/EC and **shall ensure** the application of the principle of the cascading use of biomass [...].

Member States shall design support schemes [...] with a view to **ensuring** that woody biomass is used [...] in the following order of priorities: [...]

The use of the imperative suggests—in addition to the general obligation of Member States to implement EU directives—that Member States are obliged to create a binding legal framework for ensuring the cascade when setting up support schemes for the production of energy from biomass. The wording does not allow for Member States to leave the fulfilment of the cascade solely to the market without including it in the support schemes.

CONCLUSION

The cascading use of biomass and especially wood, as laid down in Art. 3(3) RED III can play an important part in ensuring the efficient and sustainable use of (woody) biomass when

transposed into national law correctly and to its full extent. However, it has been shown that the wording of Art. 3(3) RED III is in some cases unclear. This might be used by Member States to deviate from or weaken the cascading use of biomass e.g. because of the important role that especially woody biomass plays for energy production in some countries and the considerable amount of primary wood used for combustion. But this paper shows that RED III narrowly limits and clearly defines the cases in which derogations from the cascade can be made. It also shows that neither the reference to the highest economic and environmental added value nor to national specificities can lead to weakening the cascade in the implementation into national law. In general, it can be stated that the cascading use of biomass within support schemes for the production of energy from biomass is binding for the Member States, including the stated order of priorities for the use of woody biomass, unless Art. 3(3a) RED III applies. Furthermore, ECJ case law suggests that the cascade needs to be implemented into national law through binding legal measures and additionally it needs to be enforced in practice.

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The authors used artificial intelligence tools for language editing, stylistic improvement and supporting translation. All content, analysis and conclusions were developed by the authors. The use of AI complied with the publisher's guidelines on the acceptable use of artificial intelligence which can be accessed here: <https://ubiquitypress.com/ai-policy>.

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COMPETING INTERESTS

The authors have no competing interests to declare.

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